



Child Protection Foundation Training

Indicators of Physical Abuse - Bruises

Core Competencies

- ▶ Use Procedure 300 to identify signs and symptoms of Allegations 11/61 (CA/N of Cuts, Bruises, Welts, Abrasions and Oral Injuries)
- ▶ Consider the following while investigating Allegations 11/61
 - the prevalence and location of accidental bruising in infants and toddlers
 - the relationship of age and developmental stage to bruising
 - bruising that may suggest a non-accidental cause

Core Competencies (Cont'd)

- ▶ Identify and document physical and medical evidence as required by the allegation.
- ▶ Accurately assess safety:
 - Identify the injury
 - Identify specific threat to safety
 - Identify evidence of the threat to safety

Types of Physical Abuse

- ▶ Cutaneous Injuries
 - Bruises & Marks
 - Bites
- ▶ Fractures
- ▶ Burns
- ▶ Abdominal Trauma
- ▶ Head Trauma
- ▶ Sexual Abuse

7 Deadly Sins of Early Childhood

- ▶ **Colic/Crying**
- ▶ Awakening at night
- ▶ Separation Anxiety
- ▶ Normal Exploratory behavior
- ▶ Normal Negativism
- ▶ Normal Poor Appetite
- ▶ **Toilet Training**



Seven Deadly Sins of Childhood

CRYING/COLIC

- ▶ Begins in first month, usually in first week of life
- ▶ Resolves on own by three months of age.
- ▶ Common Injuries:
 - Subdural hematomas
 - Retinal hemorrhages
 - Grab marks, rib fractures
 - Tears to mouth



Seven Deadly Sins of Childhood

TOILET TRAINING

- ▶ Refusal or Resistance to using the toilet
- ▶ Common Injuries:
 - Genital bruises,
 - Genital burns, or
 - Dunking burns to a wider area



What makes an injury suspicious?

- ▶ Unexplained injuries
- ▶ Delay in seeking medical care
- ▶ Changing or contradictory histories
- ▶ Developmentally improbable
- ▶ **Explanation for the injury does not fit injury**



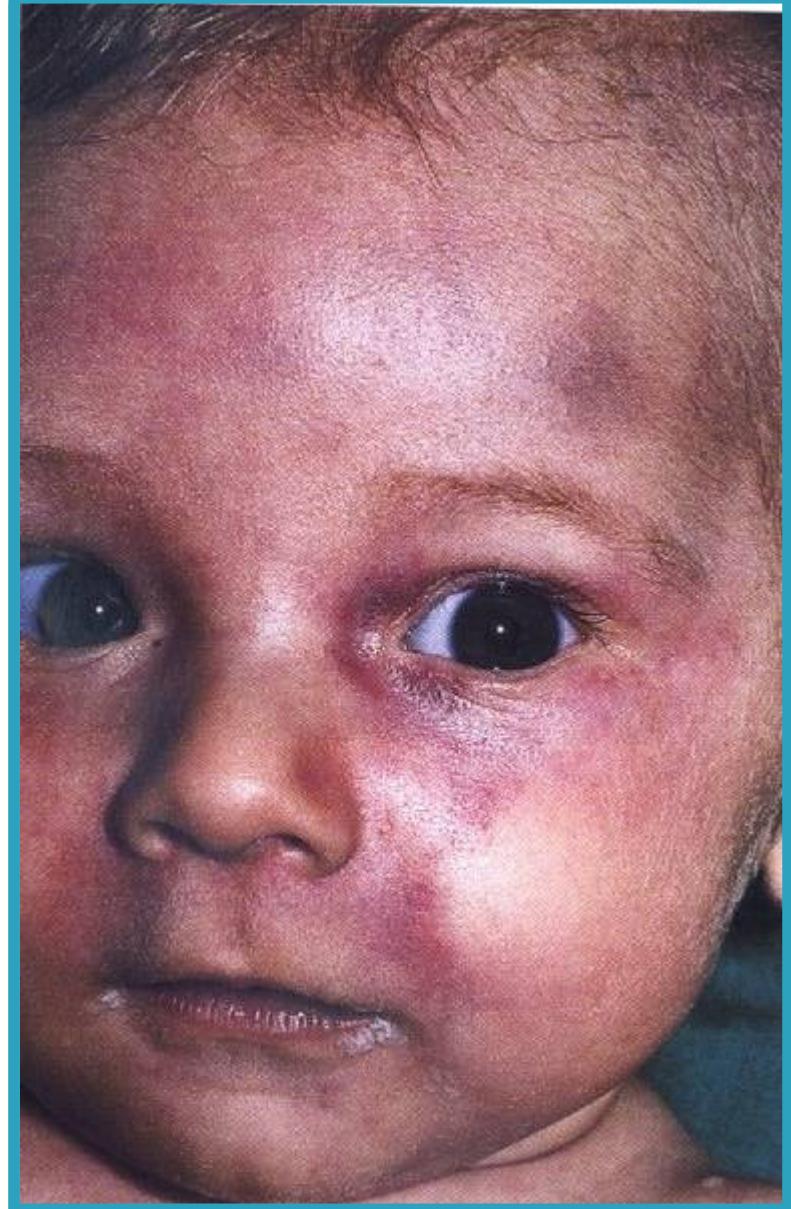
Cutaneous Injuries



Bruise

- ▶ Bleeding within skin
- ▶ Skin intact but discolored

See Infant Body Chart



Inflicted vs. Non-inflicted

- ▶ Key elements in determining whether injury is a result of child abuse
 - Location
 - Pattern
 - Extent of bruising
 - Age/Developmental ability of child

Location

Non-inflicted

- ▶ Bony prominences
- ▶ Exposed areas
 - Forehead, shins, elbows
- ▶ No pattern to bruise

Inflicted

- ▶ Protected Areas
 - Genitals, eyes, ears, neck, buttocks
- ▶ Often a pattern is present from object, hand, etc

Non-inflicted Bruises

- ▶ **Location?**
- ▶ **Pattern?**
- ▶ **Extent of the bruising?**
- ▶ **Age/developmental ability of the child**

- ▶ **Is this an area you would observe on a child?**



Inflicted Bruises



3/16/93

Inflicted Bruises (Cont'd)



Protected Area



Bruise - Protected Area



Extensive Bruising



Pattern mark - Grab mark



Pattern mark - Slap mark



Pattern Mark - Object



Pattern Mark - Object



Ligature marks



**Good
assessmen
t
work...**



ACCIDENTAL vs. NON-ACCIDENTAL

- ▶ **Age of Child and Developmental Stage**
- ▶ **Location/Sites of Bruising**
- ▶ **Pattern of Bruising**
- ▶ **Extent & Severity of Bruising**

Accident or Abuse?



Accident or Abuse?



Bruises in Infants and Toddlers: Those who don't cruise rarely bruise



■Sugar NR, Taylor JA, Feldman KW, the Puget Sound
Pediatric Research Network, *Archives Pediatr Adolesc Med.*
1999;153:399-408.

Age of Child and Developmental Stage

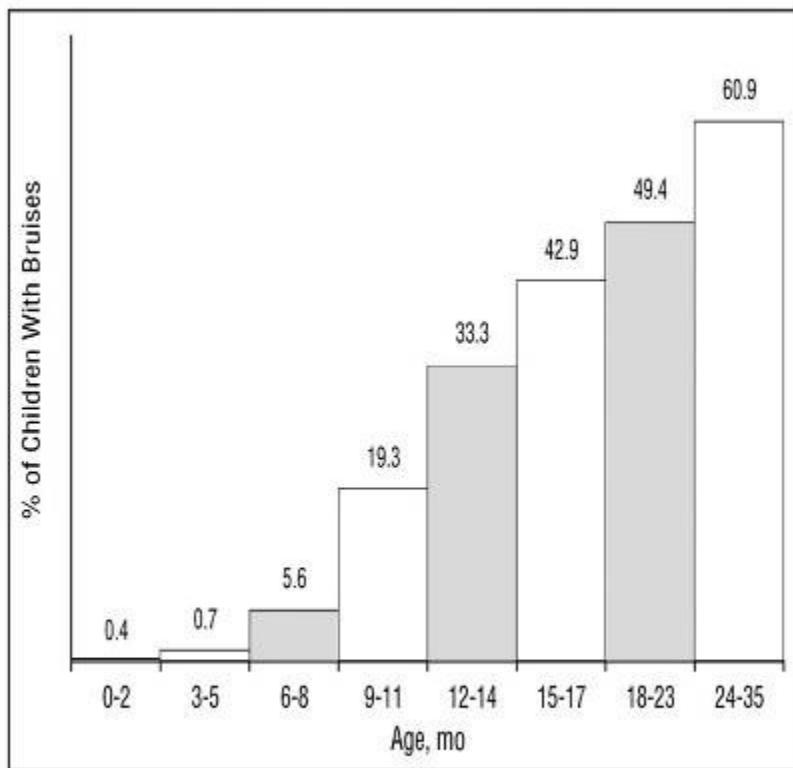


Figure 1. Percentage of children with bruises by age (N = 930).

Table 1. Bruises by Age and Developmental Stage of Child*

Age, mo	Precruiser	Cruiser	Walker
0-2	1/225 (0.4)	...	...
3-5	1/141 (0.7)	...	...
6-8	4/99 (4.0)	2/8 (25)	...
9-11	4/38 (10.5)	12/63 (19.0)	7/18 (38.9)
12-14	1/8 (12.5)	3/24 (12.5)	23/49 (46.9)
15-17	...	1/6 (16.7)	26/57 (45.9)
18-23	...	...	39/79 (49.4)
24-35	...	...	70/115 (60.9)
Total†	11/511 (2.2)	18/101 (17.8)	165/318 (51.9)

*Data are presented as the number of children with bruises/total number of children (percentage). Precruiser indicates a child who is not walking; cruiser, one who walks with support; walker, one who walks independently; ellipses, not applicable.

†P<.001.

Age of Child and Developmental Stage

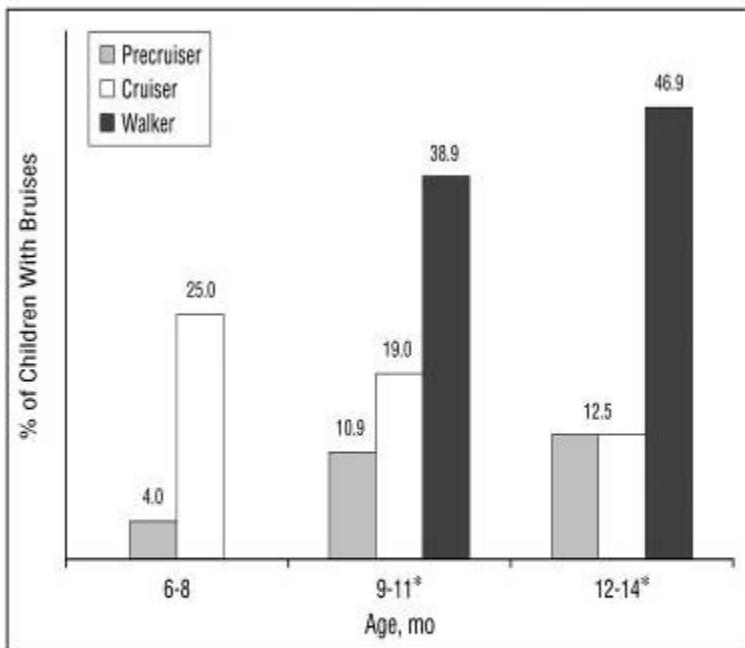


Figure 2. Prevalence of children with bruises by age and developmental stage ($N = 930$). Precruiser indicates a child who is not walking; cruiser, one who walks with support; walker, one who walks independently; and the asterisk, $P < .05$.

Table 2. More Common Sites of Bruises by Location and Developmental Stage*

Location	No. (%) of Children		
	Precruiser (n = 511)	Cruiser (n = 101)	Walker (n = 318)
Anterior tibia or knee	3 (0.6)	12 (11.9)	142 (44.7)
Forehead	3 (0.6)	3 (3.0)	18 (5.7)
Scalp	3 (0.6)	5 (5.0)	2 (0.6)
Upper leg	1 (0.2)	1 (1.0)	13 (4.4)

*Precruiser indicates a child who is not walking; cruiser, one who walks with support; and walker, one who walks independently.

Location/Sites of Bruising

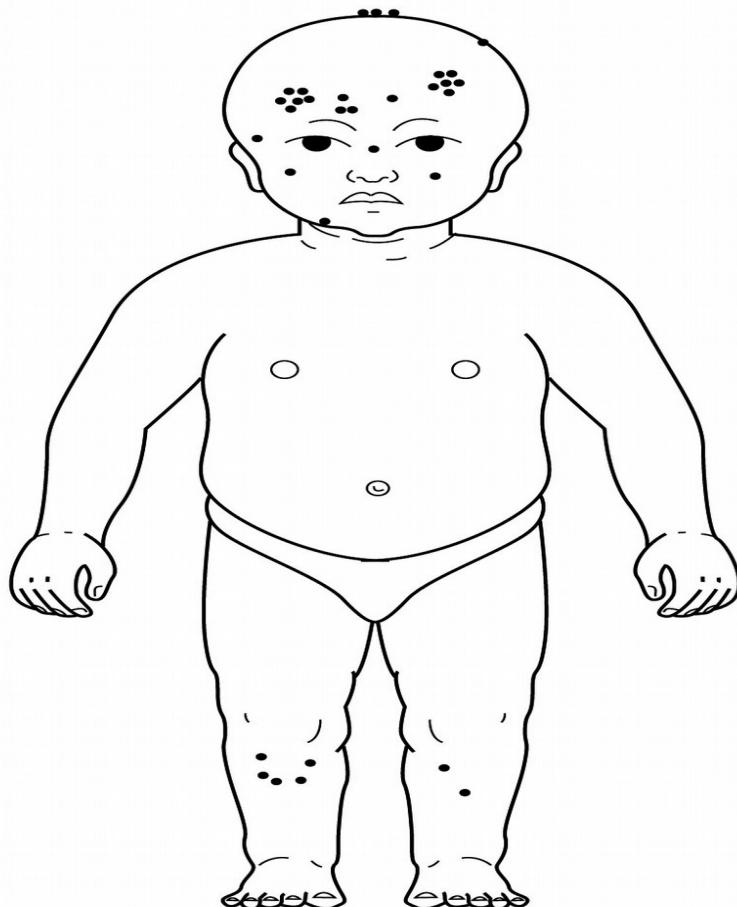


Figure 1 Illustration of the approximate sites of all the observed bruises.

Table 1 Mobility of babies with bruises

Mobility	n	With bruises (n)
Sits	101	4
Crawls	52	9
Walks	24	9
Total	177	22

Table 2 Other findings that could mimic abuse

Finding	n	Comment
Haemangioma	11	One baby had 3 (total 13)
Pigmented naevus	6	One baby had 2 (total 7)
Cafe au lait	5	One baby had 3 (total 7)
Mongolian blue spot	9	One baby had 3 discrete spots
Rash	2	One allergic, one "heat" rash

ACCIDENTAL vs. NON-ACCIDENTAL

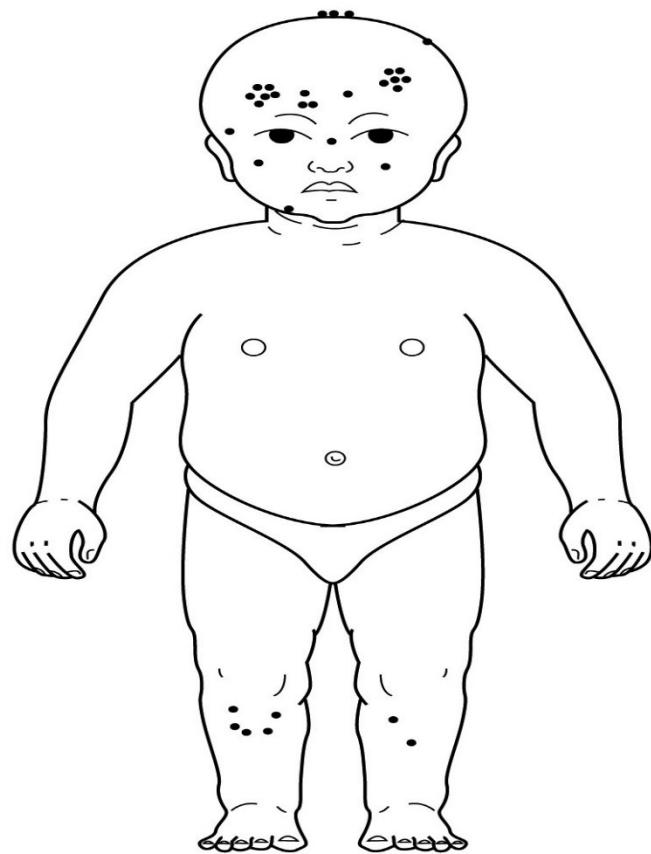


Figure 1. Illustration of the approximate sites of all the observed bruises.

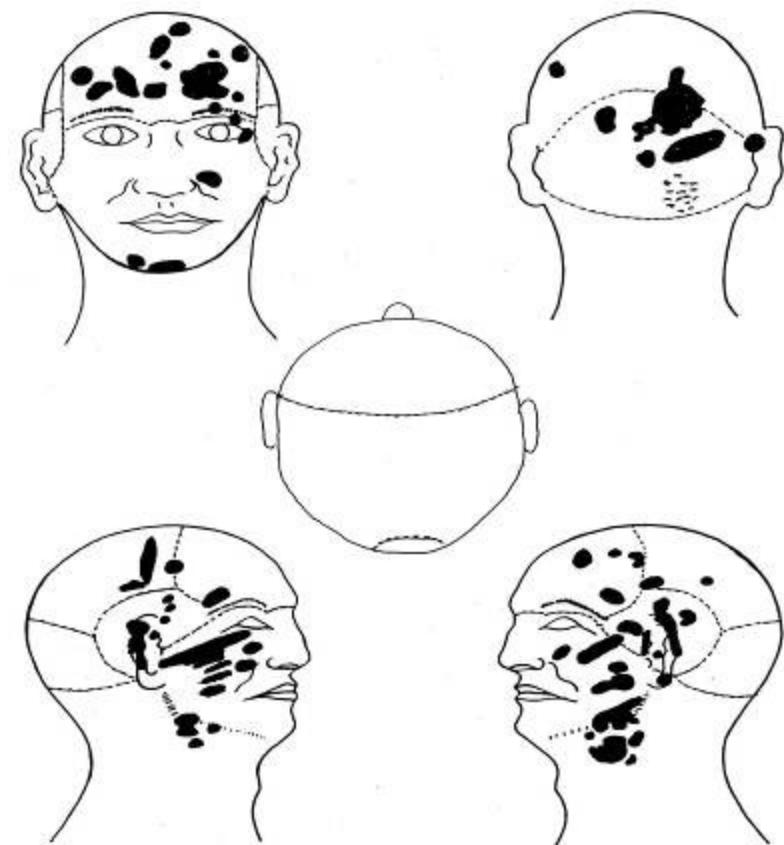


Fig. 3. Head and neck areas with composite bruising for all 24 cases.

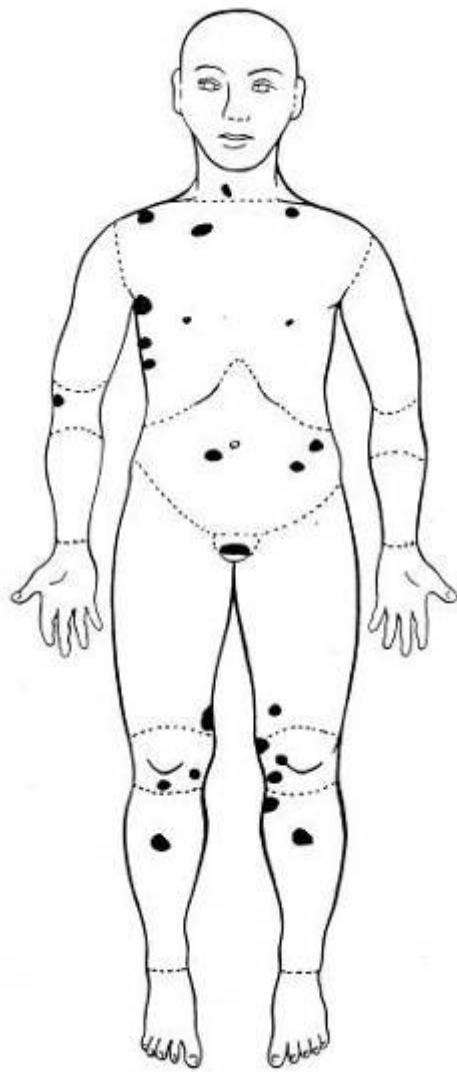


Fig. 4. Frontal areas with composite bruising for all 24 cases.

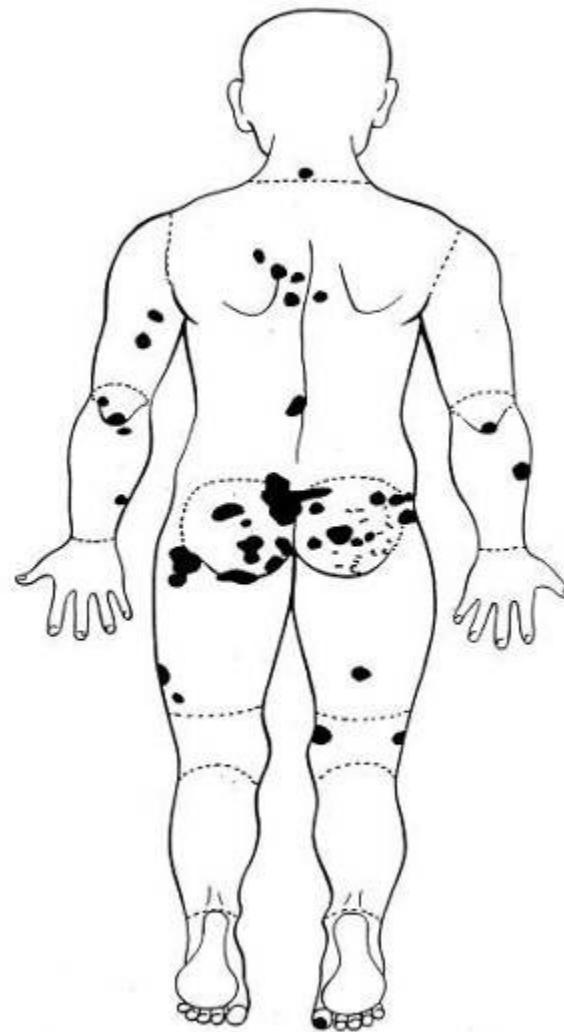


Fig. 5. Back areas with composite bruising for all 24 cases.

When a child has a bruise, it is the CPS duty to determine whether the injuries are consistent with the explanation

- ▶ Agree?
- ▶ Disagree?
- ▶ Questions/Comments?



Can We Age Bruises?

- ▶ Very difficult to age bruises precisely!
- ▶ Many factors affect appearance
 - Location on the body
 - Depth of bruising
 - Skin color
 - Patient age
- ▶ Color system inaccurate!
 - Table correlating color with age exists BUT it is NOT based on good data

Aging Bruises

► An inexact science. Affected by:

- Depth of injury
- Location on the body
- Force experienced
- Time lapsed from injury
- Skin color/complexion
- Patient age
- Ambient lighting: Professional vs. Personal
- Confidentiality

Cultural Remedies which Mimic Skin Injuries

Cupping



Mongolian
Spot

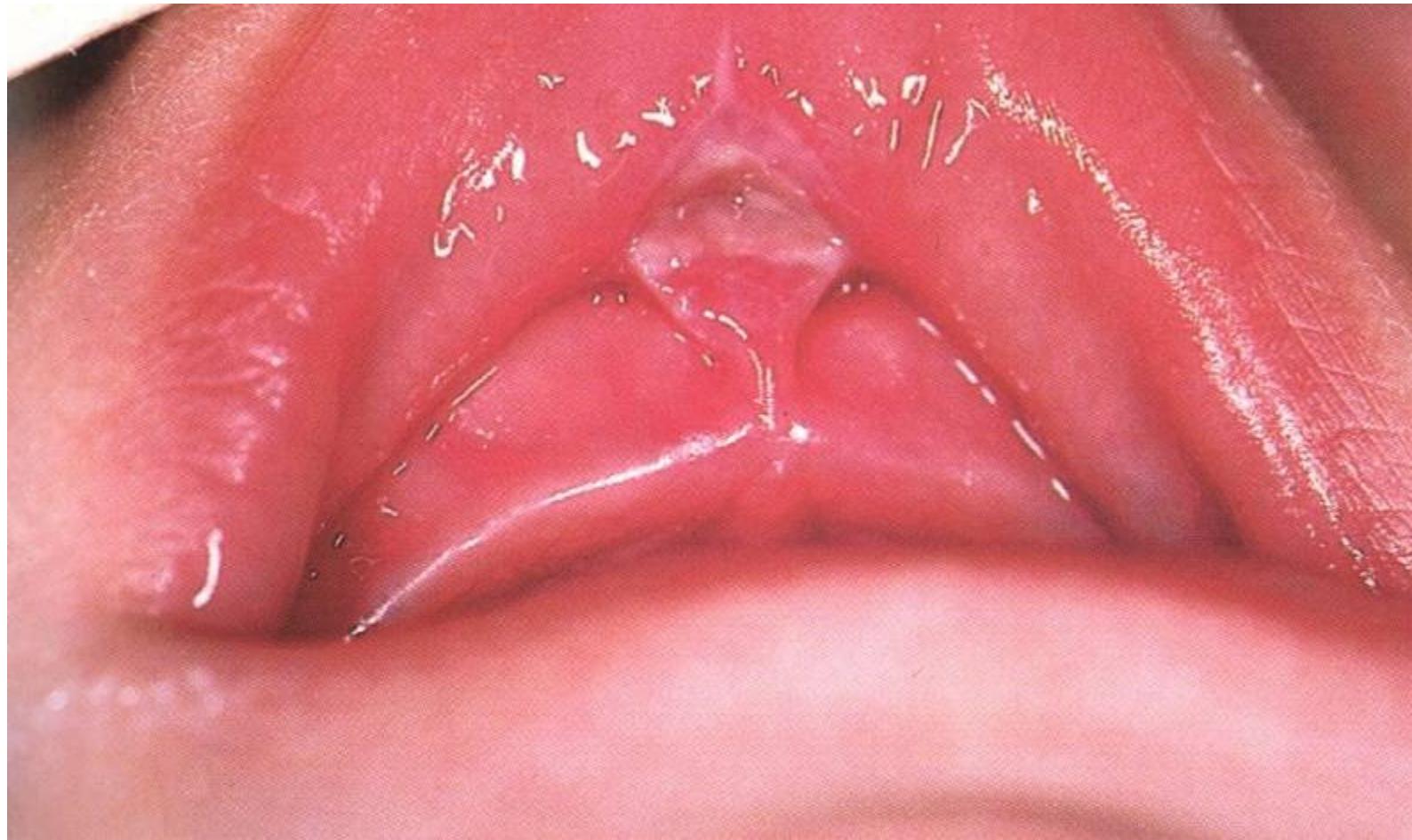


Coining

Medical Conditions which Mimic Bruises

- ▶ Dermatological conditions (Mongolian spots)
- ▶ Congenital lesions
- ▶ Neuroblastoma (raccoon eyes, form of cancer)
- ▶ Systemic illnesses (Leukemia)

Frenulum Tear



Human Bites

- ▶ **When do you see them?**
 - Normal childhood “play”
 - Physical abuse in younger children
 - Sexual abuse in older children



Characteristics

- ▶ What do they look like?
 - May have central bruising
 - Deepest/darkest mark from canine teeth
 - Distinctive dental pattern
- ▶ When do you see these?
 - Childhood “play”
 - Physical abuse in younger children
 - Sexual abuse in older children

Distinguishing Types

- ▶ **Adult vs. Child**
 - Inter-canine distance
 - children < 2.5 cm
 - adult > 3 cm

- ▶ **Animal vs. Human**
 - Animal bites tear or puncture
 - Human bites compress or crush

Bites—Adult vs. Child

ADULT BITE	CHILD BITE
Canine to canine	To second molar
Involves 1 arch	Both arches
2.5-3.5 cm. between canines	< 2.5 cm.

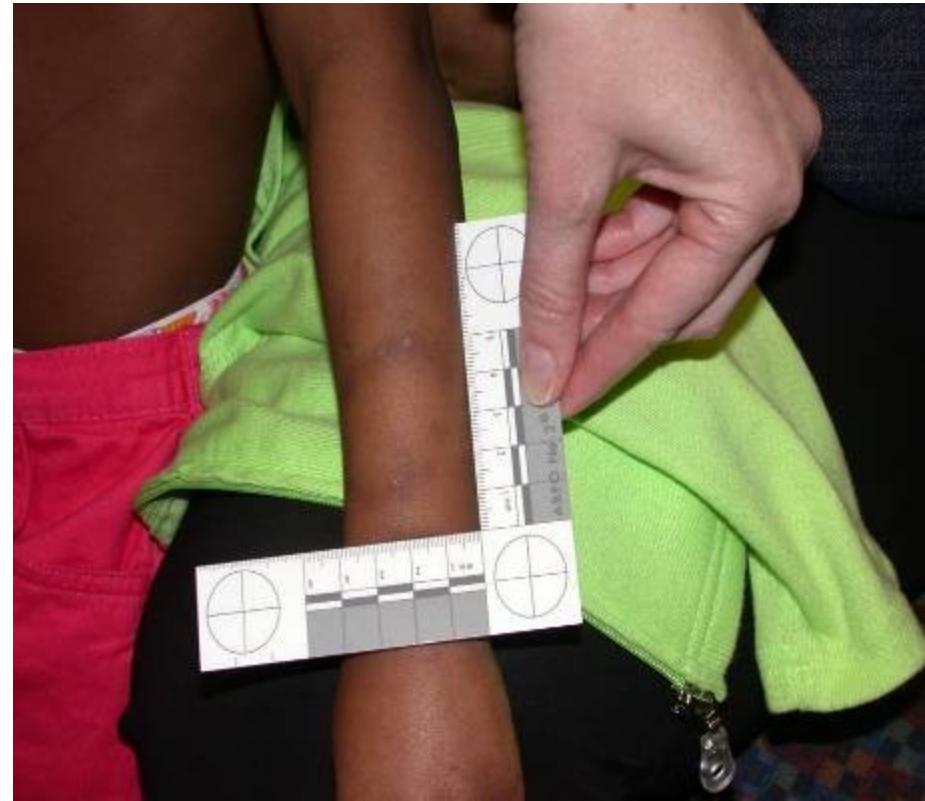
Documentation (Activity)

How to Document

- Photographs
- Measurement Tools
- Body Charts

Who to Call

- Pediatric dentist
- Forensic dentist



Red Flags!

- ▶ Inconsistent history
 - Changing or no history
 - Incompatible with developmental level
- ▶ Protected areas
- ▶ Extensive bruising / marks
- ▶ Bruising / marks in infants
- ▶ Pattern marks
- ▶ Circumferential marks



Bruises - Summary

- ▶ **What are your gut reactions to these graphic slides?**
- ▶ **Can you observe these injuries?**
- ▶ **Can you document these injuries?**
- ▶ **Can you work with these families...**
 - **Identify their strengths?**
 - **Help them protect their children?**

Questions?

